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ABSTRACT

This document describes the development of an instrument designed to assess the implementation of a professional learning community among school staff. It describes the growing need for such instruments as schools increasingly deviate from traditional approaches in education in their efforts to enhance student learning. An instrument that could be used as a screening or assessment tool to ascertain the maturity of staffs as learning communities could help researchers conduct studies of schools that were clear examples of communities of professional learners, providing insights on how a professional learning community is created in a school. Such an instrument could be used to collect baseline data to determine if the development of a school staff resulted in a community of professional learners, to explore the pacing and time required by different schools in different contexts, and to employ the instrument as a diagnostic tool. The article outlines the structure of the instrument, which was initially titled "Descriptors of Professional Learning Communities," and consists of 17 descriptors grouped into five major areas of dimensions. It details the pilot and field testing of the instrument and provides results of data analyses, descriptive analysis, reliability analyses, and validity analyses. (Contains 10 references.) (RJM)

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Issues . . . about Change

Assessing a School Staff as a Community of Professional Learners

For decades schools have been urged to engage in change and improvement activities. In the seventies, research on effective schools and on the process through which to achieve them was on "improvers" minds. In the eighties, the principal came under scrutiny for the role that a person in this position could play in school change efforts. In succession came attention to restructuring, school-based management, total quality management, and a myriad of additional programs and processes that were offered to schools to support their improvement efforts.

The Southwest Educational Development Laboratory (SEDL), like many of the ten regional laboratories, invested staff and resources in studying and supporting schools in their efforts to improve their effectiveness so that students might become more successful learners. In the process of conducting studies that examined leadership strategies and contextual factors that might influence school change, SEDL researchers discovered a school whose staff worked together in a way that was very different from that of the typical school. This school became the target of intense exploration for three years (Hord & Boyd, 1995).

This school staff's vision and continuous conversation focused on students and student learning. Beginning in the early 1980s the staff came together regularly and frequently to reflect, inquire into what they were doing and how they were doing it, and assess whether their work was producing the results they wanted for students. They brought new ideas for programs and practices that would support their work with students, and they committed to learning new strategies and content to this end.

In short, they were a staff who collectively searched for ways to become more effective teachers, who valued changing their own knowledge base and skills, and who sought change to accomplish improvement. The staff pursued these strategies through a decade and a half and a succession of four principals.

In 1990, Peter Senge's *Fifth Discipline* swept boardrooms in the private sector and, subsequently, school boards in education settings. Senge's book promoted the idea of a work environment where employees engaged as teams, developing a shared vision to guide their work, operating collaboratively to produce a better product, and evaluating their output.

Simultaneously, Susan Rosenholtz (1989) published ideas from her research that described a workplace for teachers that encouraged collaboration, an environment in which teachers shared ideas and solutions to problems, and shared learning about educational practice. Importantly, she found that as teachers learned from each other and improved their practice, benefits to students increased.

The convergence of these literatures and the research that was being done in the school noted above led an R&D team at SEDL to design new work that would focus on creating and nurturing the kind of workplace and culture in schools that Senge, Rosenholtz, and Hord and Boyd had identified — a workplace where students and learning were the undeviating focus and the staff worked collegially to achieve the desired results.

The first phase of SEDL's new work, Creating Communities of Continuous Inquiry and Improvement (CCCII), was initiated by a review of the literature to reveal what was already known about school staffs that worked in this way. The review was quite brief, since the knowledge base that focused on "professional learning communities" (PLC) or "communities of inquiry" (and we have used these terms interchangeably in our work) was in its infancy.

EA 030 297

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As Linda Darling-Hammond reported (1996), schools that operated in this way are few and far between.

The literature described these organizational arrangements in schools, providing useful insights into what they looked like and how they worked, with the SEDL research school (noted above) viewed as being parallel to the literature descriptions. The literature also contained information about student gains that resulted when staff worked as a professional learning community. What was not in the literature was how the school's administrators and teachers created or invented this way of working with each other.

With the information derived from the literature, the SEDL researchers set out to find additional schools in the laboratory's five-state region (Arkansas, Louisiana, New Mexico, Oklahoma, and Texas) that operated as communities of inquiry. The researchers felt that historical studies of these schools would reveal how they had become communities of inquirers and learners.

An immediate issue was how to identify such schools. Colleagues across the five states had been asked to nominate schools for study, but this kind of school was far too unusual to be easily identified. Schools were enthusiastically nominated, but proved disappointingly inauthentic when examined. What to do?

Evolution of an Instrument

It would be nice to report that logic and rational thinking prevailed at this juncture. As a matter of fact, it was the angel of inspiration, which descended upon the SEDL researcher. Finding herself on a return trip from Africa with an eight-hour layover in the Cape Town airport, she passed the time by searching a late draft of the literature review for final editorial changes.

Without really thinking about problem solving or a product, she began "messing around" structuring a rubric that would assess the presence or absence of the components of a professional learning community as identified in the review of the literature. The resulting instrument was patterned as an Innovation Configuration matrix or "map" (IC) (Hall & Hord, 1987; Hord, Rutherford, Huling-Austin, & Hall, 1987). In essence, it was designed to assess the existing degree of implementation of the components of a professional learning community *in operation* in a school staff. The IC orientation provided a measurement of what was actually happening.

With no presumption of noteworthy accomplishment, the newly created instrument made it through customs and to SEDL headquarters in Austin, Texas. As serendipity or synchronicity would have it, however, there was an immediate and additional need for such an instrument. The professional learning community, or community of inquiry and improvement, was a concept that was of interest to others, notably a sister lab, the Appalachia Educational Laboratory (AEL), based in Charleston, West Virginia.

One of AEL's projects proposed to "establish a network and develop a process, both of which will harness the power of collective thinking and collegial learning for continuous improvement in schools" (Meehan, Orletsky, & Sattes, 1997, p. 5). It was believed that some aspects of the AEL project, such as "shared leadership," might be measured by the instrument. A long-standing collegial relationship between SEDL and AEL staff supported the exchange of professional learning community information, including the newly crafted instrument.

The Instrument's Uses

As already noted, a need had developed for identifying school staffs as professional learning communities. An instrument that could be used as a screening, filtering, or assessment tool to ascertain the maturity of staffs as a learning community would be welcomed. With such an instrument, researchers could conduct studies of schools that were clear examples of communities of professional learners, with the goal of learning how a professional learning community is created in a school. Obviously, an inquiry into a mature professional community of learners in a school would yield much information about the school staff's transformation.

Additional uses of the instrument planned by the SEDL project would be as a means to collect baseline data and then to determine if the development of a school staff resulted in a community of professional learners. The instrument could be employed to reveal successful progress along a continuum of development, and

to explore the pacing and time required by different schools in different contexts, realizing that not all schools will reach the highest level of development at the same time or at the same rate.

Another application would be to employ the instrument as a diagnostic tool, to be used as efforts are made to create communities of professional learners in other school settings. The external facilitator and/or internal persons at a site could use such formative data as a basis for decision making about the support and assistance needed to move the staff along in its evolution as a professional learning community.

The literature is filled with exhortations about the power and desirability of teachers' working collaboratively. The instrument could facilitate and support studies of how principals (or other campus and district leaders) work with staff and the effects of their efforts on teacher collaboration and efficacy. In addition, other factors, such as context variables, could be correlated with the development of the professional learning community (as indicated by the instrument) within a school.

Finally, the instrument could be used during the continuation period after the establishment of a PLC. An assessment of each of the variables could ascertain whether it remained "robust" in the staff's working arrangements and could provide early warning signals that a part of the PLC was waning and therefore warranted increased attention.

Structure of the Instrument

The initial instrument was titled "Descriptors of Professional Learning Communities" and consisted of 17 descriptors grouped into five major areas or dimensions identified from the literature review (Hord, 1997). The five dimensions were:

1. the collegial and facilitative participation of the principal, who shares leadership (and power and authority) and decision making with the staff (with two descriptors);
2. a shared vision that is developed from the staff's unswerving commitment to students' learning and that is consistently articulated and referenced for the staff's work (with three descriptors);
3. learning that is done collectively to create solutions that address students' needs (with five descriptors);
4. the visitation and review of each teacher's classroom practices by peers as a feedback and assistance activity to support individual and community improvement (with two descriptors); and
5. physical conditions and human capacities that support such an operation (with five descriptors).

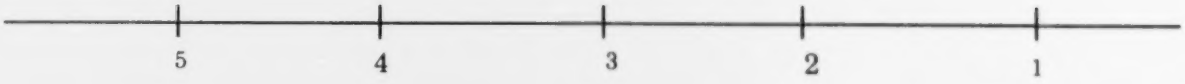
The 17 descriptors were organized to illuminate the dimensions and were distributed unevenly (as noted above) across the five dimensions. The descriptors were designed as a series of three statements structured along a continuum that would reflect most desirable or more mature practice of the descriptor to least desirable or less mature. For example, under the first dimension noted above, "collegial and facilitative participation of the principal, who shares leadership . . . through inviting shared decision making from the staff," one of the descriptors is presented as a series of three statements along a continuum:

Administrator(s) involves the entire staff.
Administrator(s) involves a small committee, council, or team of staff.
Administrator(s) does not involve any staff.

These statements were to differentiate the high, middle, and low parameters of the descriptor along a five-point scale. The format and layout of the instrument required the respondent to read all three indicators for each of the 17 descriptors and then mark the response scale. This format required more mental processing than usual for a selected-response, Likert-type instrument, but contributed much to the use of the instrument as a screening or filtering device (see Figure 1, page 4).

FIGURE 1
FORMAT OF THE INSTRUMENT

2. Staff shares visions for school improvement that have an undeviating focus on student learning, and are consistently referenced for the staff's work.

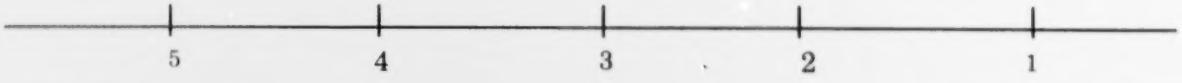


5 — Visions for improvement are discussed by the entire staff such that consensus and a shared vision results.

3 — Visions for improvement are not thoroughly explored; some staff agree and others do not.

1 — Visions for improvement held by the staff are widely divergent.

3. Peers review and give feedback based on observing each other's classroom behaviors in order to increase individual and organizational capacity.



5 — Staff regularly and frequently visit and observe each other's classroom teaching.

3 — Staff occasionally visit and observe each other's teaching.

1 — Staff never visit their peers' classrooms.

A Note to the Readers

As noted earlier in this paper, the instrument was shared with staff at AEL. Study, conversation, and other interaction between the SEDL qualitative researcher and the AEL quantitative evaluator resulted in a working agreement: the SEDL instrument would be made available and used extensively in diverse school settings, and AEL would conduct the statistical processing to test the instrument and assess its psychometric properties.

At this point it is important to provide a note to our *Issues* readers. The purpose of this paper is awareness — to let our colleagues know that the instrument exists. Because of the broad clientele of our audience, an effort has been made:

1. to keep the language and terminology reasonably understandable to those who are not experts in instrument design and testing, but also

2. to present information about the instrument in such a way that it is credible to those who are instrument *aficionados* and quantitatively oriented. The challenge has been to serve these two purposes.

Those readers who are not interested in the psychometric testing of the instrument, may skip to page 7 for Conclusions about the statistical tests. Those who are more keen about psychometrics, should read on, understanding that it is not the intention of this *Issues* paper to present the full range of procedures and results conducted in the field test on the instrument. Those interested in the full report may see Meehan, Orletsky, and Sattes (1997). Those concerned about the robustness of the field test, its procedures, and reporting, should review *FY97 Report: External evaluation of the Appalachia Educational Laboratory (1998).*

In this report, external evaluators scored the AEL field test study with two ratings of "outstanding" (on Utility and Accuracy) and two ratings of "satisfactory" (on Feasibility and Propriety), based on national evaluation standards.

Pilot Test of the Instrument

A small pilot test (n = 28 students, parents, and educators participating in a summer AEL project conference) was conducted in 1996, with encouraging results. This sample represented individuals much like those in any school community, and the results indicated that the instrument can be applied to a spectrum of people who have varying experiences and involvement in a learning community of professionals.

It is important to assess the reliability or consistency of an instrument. There are two types of reliability: internal consistency (e.g., Cronbach's Alpha) and stability (test-retest). For the pilot test, Cronbach's Alpha reliability for the total of the 17 items was + .92. There is general agreement that + .75 or above indicates appropriate instrument internal consistency.

The test-retest measures stability over time and the reliabilities for the 15 participants who could be matched with individual ID numbers was + .94. The correlation of the total score of this instrument with the total score of a school climate instrument titled the "School Climate Questionnaire" (Manning, Curtis, & McMillen, 1996) and deemed to assess similar characteristics was + .82.

This pilot test of the instrument in the AEL region with a small heterogeneous group suggested that the instrument possessed pyschometric properties sufficient to continue its use, but a field test with a larger sample of schools was required.

Field Test of the Instrument

The field test was designed with three objectives for study:

1. to assess the reliability of the professional learning community instrument,
2. to assess the validity of the professional learning community instrument, and
3. to draw conclusions about its use in educational improvement efforts at the school level.

Sample

The sample for the study included all the teachers in 21 schools in AEL's four-state region who completed and returned the instrument. The schools volunteered to participate in the study with no external rewards or motivation offers. These schools were nominated to participate usually through the building principal or other

contact persons familiar with the school and its staff. A total of 690 teachers completed and returned the instrument.

The field test schools were in Kentucky, Tennessee, Virginia, and West Virginia. The schools represented the elementary level (n = 6), middle/junior high (n = 6), and high school (n = 9). The schools' student enrollment ranged from a low of 205 to a high of 1,200. The percent of students on free and reduced lunches in the 21 districts ranged from a low of 12% to a high of 39%, with a mean of 22.5%.

A subsample of teachers in four large high schools in Tennessee were involved in the AEL project noted above (the 4 high schools were included in the 21 schools in the total sample). They volunteered to participate also in the concurrent validity and stability (test-retest) reliability analyses by (1) completing a school climate instrument at the same time and (2) including an individual identification number on their instruments, for purposes of the retest. The number of teachers in the high schools was 53, 57, 61, and 60.

The four high schools are in the same district. The district's student population is 99% Caucasian, with 13% on free or reduced lunches. It is reported that 64% of these high school students are college-bound, a figure based on the percentage of the 1996 graduating class that enrolled in two- or four-year colleges.

Finally, in addition to being used in the 21 AEL region schools in the field test, the instrument was administered to the school staff known from previous research and described to be operating as a professional learning community (the school referred to in the first section of this paper). This school, a "known group" for the construct validity analysis, is an urban school of 23 teachers and about 400 students in the New Orleans school district. The instrument was administered to this school's staff as part of the field test. Nineteen copies of the instrument were sent to AEL for the "known group" analysis, but not every teacher completed every item.

Data Analyses

Analyses of the instrument began with a file of the 690 teachers in the 21 schools, with files of data from the 4 high schools, and with the file of the "known group." The analyses of these files are presented below in paragraphs describing the descriptive statistics, the reliability analyses, and the validity analyses. All of the analyses were completed at AEL, using the SPSS statistical analysis software package.

Descriptive analysis. Descriptive analysis of the 690-case file was the first step completed. All of the descriptive statistics for the 17 individual instrument descriptor items and the total score were computed. Next, those same descriptive statistics were computed by school level — elementary, middle/junior high, and high school. Then, as one measure of the usability of the instrument, these same descriptive statistics were computed for the 21 different schools in the field test.

Based on the descriptive statistics from the instrument with 21 schools in the AEL region and using mean scores, the instrument does differentiate among all the schools. When the schools are subgrouped into three levels — elementary, middle/junior high, and high school — the instrument also differentiates the school faculties in terms of their development as professional learning communities.

Reliability analyses. Reliability analyses consisted of two types — internal consistency and stability (or test-retest). First, the internal consistency reliability coefficient, using Cronbach's Alpha formula, was computed for the total instrument. The Alpha reliability coefficient was computed on the main file of 690 cases, although not all teachers completed all items: it was .94. Next, the instrument's Alpha reliabilities were computed for the 21 individual schools in the field test. These analyses were conducted to assess the reliabilities at the level of intended use — the individual school. These Alphas ranged from .62 to .95, with one in the .60s, none in the .70s, 7 in the .80s, and 13 in the .90s.

The instrument yielded satisfactory internal consistency (coefficient Alpha) reliabilities for the total instrument in the field test. These satisfactory Cronbach's Alpha reliabilities were evident at both the full group and the individual school level. There was no pattern in the Cronbach Alpha reliabilities by the three levels — elementary, middle/junior high, and high school.

Second, the stability (test-retest) reliability coefficient was computed with the subsample of four high school faculties in Tennessee. Because of a problem in matching unique identification numbers, the number of cases that were usable was low (n = 23). Even though the coefficient of stability reliability value was computed on a smaller than ideal subsample, the resulting value for the total instrument score (.6147) was marginally satisfactory, with the potential to increase, or decrease, if the sample size were to increase.

Validity analyses. Validity analyses consisted of three types — content, concurrent, and construct (two methods).

First, *content* validity (checking that the content is appropriate) was assessed at three stages: during the development, early review, and modest reformatting of the instrument. In the first stage, the content of the five dimensions was established by the author from her review of the educational and business/corporate literature (Hord, 1997), plus her field research with southwest U.S. schools that functioned as professional learning communities. The second stage of the content validity assessment was conducted by three AEL staff as they independently reviewed the five dimensions and 17 descriptors. They modestly reformatted the instrument after reaching consensus on wording to gain additional clarity and consistency. AEL sent the reformatted instrument to the author, and the third stage of content review was completed when the author assessed the minor word changes and confirmed that the reformatting was consistent with the original intentions for the instrument. Based on the three stages of the review of the items in the instrument, the instrument was judged to possess sufficient content validity for its original intention of measuring the concept of a community of learners within the professional staff of K-12 schools.

Second, *concurrent* validity (comparing the instrument with another purporting to measure the same concept) was assessed by administering a school climate instrument. With respect to the concurrent validity, the instrument possesses satisfactory correlation with the school climate instrument used in the field test with a subsample (n = 114) of four high school faculties (the correlation between the 17-item field test instrument and the 10-item school climate instrument was .7489, significant at the .001 level).

Third, *construct* validity asks the question, Does the instrument measure the psychological construct called "professional learning community"? The "known group," noted earlier in this paper, was the first method used for construct validity analysis. The scores of the teachers in the school that was known from previous research to be functioning as a professional learning community were compared to the scores of the 690 teachers from the 21 schools in the field-test database.

The 21 AEL schools were volunteer schools, and no assumptions were made as to whether or not they were schools of professional learning communities; no data were available to support or to refute that. The purpose of this construct validity check was to assess the difference of the scores from the known-group teachers with the scores from all other teachers in the main database with the t-test. The higher scores from the teachers in the school that was known to be a learning community of professionals differ significantly (.0001) from those of the teachers in the field test. Using the known-group methodology, the instrument appears to represent the construct of a mature professional learning community.

Last, *factor analysis*, the second method of construct validity analysis, included unconstrained principal components analysis followed by both varimax and oblique rotations of the data. The final factor analysis solution was an iterative process of comparing the before-rotation data with the after-rotation data, then going back to the descriptive statistics on the scores, and including their distributions. Based on factor analysis results, it appears that the 17-item instrument represents a unitary construct of a professional learning community within schools.

Conclusions

As noted, the usability, reliability, and validity tests have been completed, and the instrument appears to meet the expected criteria. To summarize, the tests for reliability and validity have been satisfactorily met. After testing of the instrument it was concluded that, overall, it

appears that the 17-item instrument is very useful as a screening, filtering, or measuring device to assess the maturity of a school's professional staff as a learning community.

The instrument testing has been expanded to a national field test — that is, it is being utilized by individuals across the nation. From these individuals, school staff responses are being collected and analyses conducted to enhance and strengthen the database. After the current national field testing, the instrument is expected to be available for dissemination and widespread use by educators and others as a diagnostic or assessment tool that can support the nurture and development of professional learning communities, and subsequently, school staffs' collegial work for continuous school improvement.

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